LIQUID CHROMIC ACID 40%

SECTION 1. IDENTIFICATION

Product name : LIQUID CHROMIC ACID 40%

Product code : 2200443-0055-4-000

Manufacturer or supplier's details

Company name of supplier : Atotech Deutschland GmbH

Address : Erasmusstrasse 20
Berlin 10553
Germany

Telephone : +4930349850

Company name of supplier : Atotech USA

Address : 1750 OVERVIEW DRIVE
ROCK HILL, SC, USA 29730

Telephone : +18038173500

Prepared by
Product Safety Department (PSD): product-safety@atotech.com

Inquiries
Questions about content of Safety Data Sheets: product-safety@atotech.com

Emergency telephone : CHEMTREC +18004249300

Transport Medical : Rocky Mountain Poison Control Center: 303-623-5716

Recommended use of the chemical and restrictions on use

Recommended use : Plating agents and metal surface treating agents
Surface treatment

Restrictions on use : For industrial use only.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral) : Category 3

Acute toxicity (Inhalation) : Category 2

Acute toxicity (Dermal)	:	Category 2
Skin corrosion	:	Category 1A
Serious eye damage	:	Category 1
Respiratory sensitization	:	Category 1
Skin sensitization	:	Category 1
Germ cell mutagenicity	:	Category 1B
Carcinogenicity	:	Category 1A
Reproductive toxicity	:	Category 2
Specific target organ systemic toxicity - single exposure	:	Category 3 (Respiratory system)
Specific target organ systemic toxicity - repeated exposure	:	Category 1

GHS Label element

Hazard pictograms :

Signal Word : Danger

Hazard Statements :
H301 Toxic if swallowed.
H310 + H330 Fatal in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements : **Prevention:**
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P262 Do not get in eyes, on skin, or on clothing.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 Wear respiratory protection.

Response:
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310 Immediately call a POISON CENTER or doctor/ physician.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Aqueous solution

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
Chromium trioxide	1333-82-0	>= 25 - < 40

This product may contain component (s) that are not listed under disclosure. All components not listed, do not contain hazardous materials above deminimus disclosure limits as defined by OSHA, NIOSH, ACGIH or Canadian WHMIS regulations and or guidelines. Please refer to other sections of the MSDS for information on safety, health and environmental guidelines and precautions.

SECTION 4. FIRST AID MEASURES

General advice : Call a physician or poison control center immediately.
Show this material safety data sheet to the doctor in attendance.

If inhaled : Call a physician or poison control center immediately.
Move to fresh air.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes.
Take off contaminated clothing and shoes immediately.
Consult a physician.

In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 30 minutes.
Consult a physician.

If swallowed	:	If swallowed, call a poison control center or doctor immediately. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice.
Most important symptoms and effects, both acute and delayed	:	Toxic if swallowed. Fatal in contact with skin or if inhaled. May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure. Causes severe burns.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing No artificial respiration, mouth-to-mouth or mouth to nose. Use suitable instruments/apparatus.
Notes to physician	:	For specialist advice physicians should contact the Poison Control Center.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Foam Dry powder Carbon dioxide (CO2) Sand
Unsuitable extinguishing media	:	High volume water jet
Hazardous combustion products	:	Oxygen Chromium compounds
Specific extinguishing methods	:	Use a water spray to cool fully closed containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	:	Exposure to decomposition products may be a hazard to health. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust).
Environmental precautions	:	Should not be released into the environment. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Avoid formation of aerosol. Dam up. Soak up with inert absorbent material. DO NOT use combustible materials such as sawdust Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly while observing environmental regulations.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Handle in accordance with good industrial hygiene and safety practice. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid breathing mist or vapors.
Conditions for safe storage	:	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons. May be corrosive to metals.
Recommended storage temperature	:	-5 - 40 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Chromium trioxide	1333-82-0	TWA	0.05 mg/m3 (chromium)	ACGIH
		PEL	0.005 mg/m3 (chromium)	OSHA CARC

		TWA	0.0002 mg/m3 (chromium)	NIOSH REL

Personal protective equipment

Respiratory protection : In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
In case of insufficient ventilation, wear suitable respiratory equipment.
Use NIOSH approved respiratory protection.

Hand protection
Remarks : Wear protective gloves.The suitability for a specific workplace should be discussed with the producers of the protective gloves.Follow the instructions for use issued by the producer.

Eye protection : Tightly fitting safety goggles
Face-shield
Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection : Impervious clothing
Apron
Boots

Protective measures / Engineering measures : Ensure adequate ventilation, especially in confined areas.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Wash hands before breaks and immediately after handling the product.
When using do not eat, drink or smoke.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	Dark red
Odor	:	No information available.
Odor Threshold	:	No data available
pH	:	< 2
Melting point/freezing point	:	not determined
Initial boiling point and boiling range	:	not determined
Flash point	:	Not applicable
Evaporation rate	:	No data available

Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapor pressure	:	ca. 23 hPa (20 °C)
Relative vapor density	:	No data available
Density	:	1.32 - 1.42 g/cm3
Solubility(ies)		
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Thermal decomposition	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	May be corrosive to metals. The product is oxidizing when dried.
Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Gives off hydrogen by reaction with metals. Potential for exothermic hazard Risk of violent reaction
Conditions to avoid	:	To avoid thermal decomposition, do not overheat.
Incompatible materials	:	Bases Metals Combustible material Reducing agents
Hazardous decomposition products	:	Chromium oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Inhalation
Ingestion
Eye contact
Skin Absorption

Acute toxicity

Toxic if swallowed.
Fatal in contact with skin or if inhaled.

Product:

Acute oral toxicity	:	Acute toxicity estimate : 250.64 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate : 0.42 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate : 142.86 mg/kg Method: Calculation method

Ingredients:

Chromium trioxide:

Acute oral toxicity	:	Acute toxicity estimate : 100 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 0.167 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 Dermal (Rabbit): 57 mg/kg

Remark: The acute toxicity estimate (ATE) of the ingredients are derived using the LD50/LC50 values where available.

Skin corrosion/irritation

Causes severe burns.

Product:

Remarks: Extremely corrosive and destructive to tissue.

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Remarks: May cause irreversible eye damage.

Respiratory or skin sensitization

Skin sensitization: May cause an allergic skin reaction.

Respiratory sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Product:

Remarks: Causes sensitization.

Germ cell mutagenicity

May cause genetic defects.

Carcinogenicity

May cause cancer.

IARC	Group 1: Carcinogenic to humans	
	Chromium trioxide	1333-82-0
ACGIH	Confirmed human carcinogen	
	Chromium trioxide	1333-82-0
OSHA specified	OSHA specifically regulated carcinogen	
	Chromium trioxide	1333-82-0
NTP	Known to be human carcinogen	
	Chromium trioxide	1333-82-0

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Ingredients:

Chromium trioxide:

Reproductive toxicity - Assessment	:	Suspected of damaging fertility.

STOT-single exposure

May cause respiratory irritation.

Product:

Target Organs: Respiratory system

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Product:

Target Organs: No specific target organs noted

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Chromium trioxide:

Toxicity to fish	:	LC50: 40 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50: 0.162 mg/l Exposure time: 48 h

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

Product:

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with local regulations. Dispose of wastes in an approved waste disposal facility.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulation

UNRTDG

UN number	:	UN 1755
Proper shipping name	:	CHROMIC ACID SOLUTION
Class	:	8
Packing group	:	II
Labels	:	8

IATA-DGR

UN/ID No.	:	UN 1755

Proper shipping name	:	Chromic acid solution
Class	:	8
Packing group	:	II
Labels	:	Corrosive
Packing instruction (cargo aircraft)	:	855
Packing instruction (passenger aircraft)	:	851

IMDG-Code

UN number	:	UN 1755
Proper shipping name	:	CHROMIC ACID SOLUTION
Class	:	8
Packing group	:	II
Labels	:	8
EmS Code	:	F-A, S-B
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

DOT / 49 CFR

UN/ID/NA number	:	UN 2922
Proper shipping name	:	Corrosive liquids, toxic, n.o.s.
Technical name(s)		(Chromium trioxide)
Class	:	8
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	CORROSIVE, POISON
ERG Code	:	154
Marine pollutant	:	no

SECTION 15. REGULATORY INFORMATION

TSCA 5a : Not relevant

TSCA_12b : Chromium trioxide

DEA : Not applicable

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Chromium trioxide	1333-82-0	10	25

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute Health Hazard

Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Chromium trioxide 1333-82-0

Massachusetts Right To Know

Chromium trioxide 1333-82-0 25 - 40 %

Pennsylvania Right To Know

Chromium trioxide 1333-82-0 25 - 40 %

New Jersey Right To Know

Chromium trioxide 1333-82-0 25 - 40 %

California Prop 65

WARNING! This product contains a chemical known in the State of California to cause cancer.

Chromium trioxide 1333-82-0

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Chromium trioxide 1333-82-0

Remarks: Components which are only displayed in Section 15 are being reported for local regulatory purposes. These components are not displayed in Section 3 due to one or more of the following conditions being met: being present in the product at concentration(s) below threshold limit values for reporting, not considered hazardous materials, health hazards or because they do not contribute to the overall GHS Classification of the final product as required by OSHA HazCom 2012 final rule (29 CFR 1910.1200).

Substances currently restricted by WEEE/RoHS (European Directive 2002/96/EC , 2002/95/EC) or ELV (European Directive 2000/53/EC):

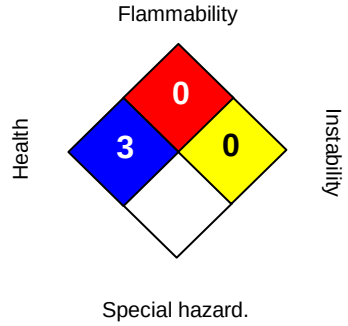
PBDE	PBB	CrVI	Hg	Pb	Cd
-	-	>0,1 %	-	-	-

Please note: Current legislation restricting the use of certain substances applies to „homogeneous material“ in finished articles being supplied to the market. Substances deposited during surface finishing may have a composition (weight percent) higher than the weight percent of the substance in the operating solution from which the deposit is made. Atotech encourages its customers to implement systems to ensure their finished products comply with the regulations in force.

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 27.05.2015

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.